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terminal,—that is to say the flowers terminate one or the other of these growth cycles. If the shoot makes but one of these efforts, the flower remains terminal; but if after forming these buds, it "concludes" to go on again with another growth, the flower is of necessity pushed aside, and then the cone becomes lateral. In other words, there is no such thing in Pinus as a lateral cone when there is but a single cycle of annual growth, and therefore the division of Dr. Engelman is founded on an accidental rather than an organic difference. I think however that what are known as the terminal flowered group never make a second growth, and therefore Dr. Engelman's division is excellent, only changing the description into "Pines which never make a second growth" and "Pines which generally do." The gray pine can then stay where it is without the creation of an intermediate group as suggested by Mr. Gilman.

In the suggestions I have made here, there is nothing new. They have appeared at various times during the past six years in the "Proceedings of the Academy of Natural Sciences of Philadelphia;" but I suppose the mission of the NATURALIST is to extend knowledge, as well as to record the discovery of new facts.—THOMAS MEEHAN.

ZOOLOGY.

THE SLAUGHTER OF THE BUFFALO.—The destruction of this noble beast was carried on during the past year with a rapidity entirely unprecedented, although it has been a matter of regretful comment for years. I have authority for the assertion that one firm in Leavenworth received thirty thousand hides per month, while two others in Kansas City received fifteen thousand each in the same time. This is at the rate of two thousand slain per day. The immense piles or stacks of hides, to be seen at all the stations along the line of the Kansas Pacific railroad, bear witness to the slaughter. Prof. Mudge of Manhattan, Kansas, who is well informed as to the economy of the plains, places the number killed at one thousand, a number sufficiently high to insure the early extinction of the species.

It is to be greatly hoped that Congress will early take action for the preservation of a reduced herd of buffalo, in a reservation set apart for the purpose, or enact protective laws. Such might impose penalties on persons found in possession of any part of the animal during certain months, a sufficient time being allowed for their increase. At present, this finest of our wild animals ranges over territory which will long remain unsettled, owing to its want of water. While the river bottoms of Kansas, Nebraska, Colorado, etc., will soon be taken up, the high plains of those regions will be utterly void, unless occupied by nature's tenants, the buffalo, prong-horn, elk, etc. Artesian wells for irrigating these tracts are still in the far future.

The government of China has preserved several species of animals from extinction in the imperial parks and preserves. The Czar of Russia has protected the European bison from destruction in the old forests of Lithuania. Our own government preserves the beauties of the inanimate creation in the Yellowstone park. How much more should it keep for the instruction of future generations a full representation of those higher works of creative mind, the living beings that characterize our continent.—E. D. C.

A PARTIAL COMPARISON OF THE CONCHOLOGICAL FAUNÆ OF PORTIONS OF THE ATLANTIC AND PACIFIC COASTS OF NORTH AMERICA. —A distinguishing feature in the conchological fauna of that portion of the Pacific coast included between the Straits of Fuca and San Diego, and which is called the Californian and Oregonian Zoological Province, when compared with the Atlantic coast of North America, from the Arctic seas to Georgia, is the preponderance in the former province over the latter of those forms of molluscan life included in the order Scutibranchiata.

The total number of marine molluscan species and well-marked varieties, so far as known and determined, in the Californian and Oregonian Province, is in round numbers 630, of which about 200 are bivalves, and of the remaining 430, 123 are included within certain Scutibranchiate families. Of this 123, no less than 40 belong to the Chitonidæ and as many more to the Trochidæ.

Of the 247 marine gasteropods enumerated by the late Dr. Stimpson in the Smithsonian Institution check-list, from the Arctic seas to Georgia, 32 only, or less than one-eighth, come within the order referred to; of this number, 14 belong to the Trochidæ, 7 to the Chitonidæ, and not a single specimen of Haliotis has been found as yet within the limits named, and only a single individual of very small size has as yet been reported from any point on the Atlantic coasts of the two Americas, and the solitary specimen referred to was dredged by Count Pourtales in the Florida Gulf Stream a few years ago. When the shells of Florida are sufficiently investigated, so that a check-list may be made, it may somewhat affect this comparison, but other Scutibranchiate species may be found on this coast, so that it is highly probable that the above comparison will remain substantially correct.—R. E. C. STEARNS.

COLLURIO LUDOVICIANUS.—A male in fine plumage, now in my possession, was shot in West Newton, Mass., Oct. 21, 1872, by Mr. Joseph S. Maynard. Allowing the existence of two varieties, if not species, I think this specimen approaches nearer to *Ludovicianus* than *excubitoroides*. Is not this the first recorded instance of the authentic occurrence of this southern and western bird in the coast states, or at least near the coast, north of Virginia if not the Carolinas?—H. A. PURDIE, *November*, 1872.

RACCOON FOX.—In the June number of the AMERICAN NATURALIST (page 362), I find a notice that one of these little animals had been killed, and another seen in Fairfax County, Ohio, and it is remarked, in connection with its northern locality, that the specimen obtained was furred instead of haired. The range of the *Bassaris astuta* is much greater than your correspondent supposes, unless there be two varieties or two species of this genus. They are found, I believe, throughout California, as far north as the Klamath River, Lat. 41° N., where, in 1852, I purchased from an Indian a breech clout made of seven skins, the fur of which was very soft and beautiful. I heard at the time that the "Raccoon Fox," as the miners called it, had occasionally been tamed and employed to destroy mice and other vermin. In Cooper and Suckley's Natural History of Washington Territory, etc., p. 114, your correspondent will find a reference on my authority to the above *habitat*. I doubt if it extends into Oregon, as the Siskiyou Mountains, parallel of 42° N., form a geographical boundary for several species of animals, birds and plants.

The specimens in question were probably escapes, brought either from Kansas or California by some returned miner or emigrant.—GEORGE GIBBS, *New Haven*.

GEOLOGY.

ON A NEW SUB-CLASS OF FOSSIL BIRDS (ODONTORNITHES).—The remarkable extinct birds with biconcave vertebræ (*Ichthyornidæ*),